

REMARKS

Applicant requests favorable reconsideration and allowance of the subject application in view of the preceding amendments and the following remarks.

Claims 2-10, 12-17, 19 and 20 are presented for consideration. Claims 2 and 12 are independent. Claims 3, 10, 12-14 and 20 have been amended to clarify features of the subject invention. Support for these changes can be found in the original application, as filed. Therefore, no new matter has been added.

Applicant requests favorable reconsideration and withdrawal of the objection and rejections set forth in the above-noted Office Action.

Claims 3 and 13 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner objected to the phrase "said plurality of optical elements is used selectively." The Examiner, however, suggested that this phrase be amended to include the aspect that the plurality of optical elements are used selectively -- to change the aberration --. To expedite prosecution, claims 3 and 13 have been amended according to the Examiner's comments. Applicant submits that these changes overcome this rejection. Such favorable indication is requested.

Claim 12 was objected to on formal grounds. Specifically, the Examiner asserted that the term "the wafer" lacked proper antecedent basis. The Examiner, however, suggested that this term be changed to read -- a substrate --. Again, to expedite prosecution, Applicant has amended claim 12 in light of the Examiner's comments. Applicant likewise submits that this change overcomes the Examiner's objection. Such favorable indication is requested.

Applicant notes with appreciation that claims 2 and 4-10 have been allowed over the art of record, and that claim 3 would be allowable if rewritten or amended to overcome the rejection under 35 U.S.C. § 112, second paragraph. For the reasons discussed above, Applicant submits that claim 3 has been so rewritten. Therefore, claims 2-10 should be deemed allowable at the outset.

Applicant further notes with appreciation that claims 14 and 15 were indicated as containing allowable subject matter, and would be allowed if rewritten in independent form. Applicant earnestly believes, however, that he should be entitled to the protection afforded by independent claim 12, as presented. Therefore, these claims have not been so rewritten at this time.

Applicant submits that, in addition to claims 2-10 being allowable, claims 12-17, 19 and 20, likewise patentably define features of the subject invention. Accordingly, Applicant requests favorable reconsideration and withdrawal of the art rejections set forth in the above-noted Office Action.

Claims 12, 13, 17, 19 and 20 were rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 5,424,552 to Tsuji et al. Claim 16 was rejected under 35 U.S.C. § 103 as being unpatentable over the Tsuji et al. patent in view of published U.S. patent application number 2002/0126268 to Matsumoto et al. Applicant submits that the cited art, whether taken individually or in combination, does not teach or suggest many features of the present invention, as recited in these claims. Therefore, these rejections are respectfully traversed.

In one aspect of the present invention, independent claim 12 recites a projection system for projecting a pattern of a mask onto a substrate. The projection system includes a projection optical system disposed between the mask and the substrate, and an optical element for correcting aberration produced in the projection optical system. The optical element has different refracting powers in two orthogonal directions or has a refracting power in one direction of two orthogonal directions and no refracting power in the other of the two orthogonal directions. The optical element is disposed between the mask and the substrate and an optical axis of the optical element is inclined with respect to an optical axis of the projection optical system.

Accordingly, in the present invention recited in independent claim 12, the optical element has an optical axis which is inclined with respect to an optical axis of the projection optical system. In this regard, Applicant submits that at least Figures 3 and 4 of the drawings support this feature of the invention. These figures show that the cylindrical lens, for example, is inclined, which means that the optical axis of the cylindrical lens is inclined with respect to the optical axis of the projection lens.

Applicant submits that the cited art does not teach or suggest such features of the present invention, as recited in independent claim 12.

The Examiner relies on the Tsuji et al. patent for showing a projection optical system for projecting a device pattern of a mask onto a substrate, the projection optical system being disposed between the mask and the substrate, with an optical element for correcting aberration being disposed between the mask and the substrate. Applicant submits, however, that in the arrangement in the Tsuji et al. patent, the optical axis of the cylindrical lens is registered with the

optical axis of the projection lens. Thus, in that arrangement, the optical axis of the optical element is not inclined with respect to the optical axis of the projection optical system, in the manner of the present invention recited in independent claim 12. Accordingly, the Tsuji et al. patent does not teach or suggest at least this salient feature of Applicant's present invention.

Applicant further submits that the remaining art cited does not cure the deficiencies noted above with respect to the Tsuji et al. patent.

The Examiner relies on the Matsumoto et al. document for teaching that, in a projection exposure apparatus using an excimer laser as a light source, it is desirable to use elements of quartz or fluorite. Applicant submits, however, that the Matsumoto et al. document, as with the Tsuji et al. patent, does not teach or suggest the salient features of Applicant's present invention, as recited in independent claim 12, which have been discussed above. Accordingly, that document adds nothing to the teachings of the Tsuji et al. patent that would render obvious Applicant's present invention recited in independent claim 12.

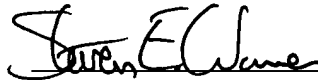
For the reasons noted above, Applicant submits that the present invention, as recited in independent claim 12, also is patentably defined over the cited art.

Dependent claims 13-17, 19 and 20 also should be deemed allowable, in their own right, for defining other patentable features of the present invention in addition to those recited in independent claim 12. Further individual consideration of these dependent claims is requested.

Applicant further submits that the instant application is in condition for allowance. Favorable reconsideration, withdrawal of the objection and rejections set forth in the above-noted Office Action and an early Notice of Allowance are requested.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should be directed to our address listed below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Steven E. Warner", is written over a horizontal line.

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